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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/533,778	03/24/2000	Akira Teraoka	2000 0311A	2449

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EXAMINER
SONG, HOON K

ART UNIT	PAPER NUMBER
2882	

DATE MAILED: 08/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/533,778	TERAOKA, AKIRA	
	Examiner	Art Unit	
	Hoon Song	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 21-32 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 21-32 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 21-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Halliday et al. (US 5388136).

Regarding claim 21, Halliday teaches a method of x-ray inspection of a section of a sample comprising:

Arranging an X-ray source (12) and an X-ray detecting device (13) so as to face each other with the sample (11) between them (figure 1);

Swinging the X-ray detecting device in translational motion about a straight line as an axis (Z-axis), the straight line lying in a plane of the section of the sample, while maintaining an incidence plane of the X-ray detecting device parallel to the section of the sample (figure 1);

Applying X-rays to the sample with the X-ray source while rotating the X-ray source about the straight line in synchronization with said swinging of the X-ray detecting device (figure 1); and

Detecting X-rays passing through the sample with the X-ray detecting device (figure 1).

Regarding claim 22, Halliday teaches that the sample is placed on a stage and the section of the sample is vertical to the stage (figure 1).

Regarding claim 23, Halliday teaches that the sample is placed on a stage and the section of the sample is out of vertical to the stage (figure 1).

Regarding claim 24, Halliday teaches that the sample is placed on a stage and the straight line is vertical to the stage (figure 1).

Regarding claim 25, Halliday teaches an X-ray inspection apparatus, comprising:

an X-ray source (figure 1);

An X-ray detecting device operable to detect X-rays, wherein said X-ray detecting device and said X-ray source are positioned relative to each other so that a sample can be placed there between and so that X-rays emitted from said source to pass through a sample can be detected by said X-ray detecting device, said X-ray detecting device having an X-ray incidence plane arranged to be parallel to a straight line (Z-axis, figure 1);

A swinging means for swinging said X-ray detecting device in translational motion about the straight line as an axis while said X-ray incidence plane is maintained facing in the same direction (figure 1); and

A rotating means for rotating said X-ray source about the straight line as an axis of rotation in synchronization with said X-ray detecting device (figure 1).

Regarding claim 26, Halliday teaches that a stage is located between said X-ray detecting device and said X-ray source for having the sample placed thereon such that

a subject section of the sample is in a plane containing the straight line and parallel to said X-ray incidence plane; and the section is vertical to said stage (figure 1).

Regarding claim 27, Halliday teaches that a stage is located between said X-ray detecting device and said X-ray source for having the sample placed thereon such that a subject section of the sample is in a plane containing the straight line and parallel to said X-ray incidence plane; and the section is out of vertical to said stage (figure 1).

Regarding claim 28, Halliday teaches that the straight line is vertical to said stage.

Regarding claim 29, Halliday teaches that the straight line is vertical to said stage (figure 1).

Regarding claim 30, Halliday teaches a sliding mechanism for sliding said X-ray detecting device in a direction perpendicular to said X-ray incidence plane (figure 1).

Regarding claim 31, Halliday teaches a stage transfer device for two dimensionally transferring a stage on which the sample is placed (figure 1).

Regarding claim 32, Halliday teaches a stage transfer device for two dimensionally transferring a stage on which the sample is placed (figure 1).

Response to Arguments

Applicant's arguments filed May 27, 2003 have been fully considered but they are not persuasive.

In response to applicant's argument that there is no disclosure or suggestion of "swinging" any of the x-ray detectors of Halliday et al. the examiner respectfully disagrees with the interpretation. According to Merrian Webster's College Dictionary,

"swing" is defined as "to cause to move vigorously through a wide arc or circle". Thus Halliday's rotating detector would read on the limitation.

In response to applicant's argument that there is no disclosure or suggestion of maintaining an incidence plane of the x-ray detecting device parallel to the section of the sample, since the detector is rotating about axis Z, the plane of X-ray detecting device is maintained to parallel to the sample.

In response to applicant's argument that there is no disclosure or suggestion of the z axis would lie in the plane of the section of the sample, since the electronic device to be inspected is loaded on to a table set (column 2 line 24+), the z-axis would lie in the plane of the section of the sample.

The applicant argues that there is no disclosure or suggestion of rotating the x-ray source about the straight line Z, but the Halliday reference clearly teaches that each source is mounted on a radially movable slide (column 2 line 32+).

The applicant argues that there is no indication of the section of the sample being vertical or out of vertical to the stage, but since Halliday's sample table is horizontally platen and the electronic device to be inspected is load on the table, the sample will have plane which vertical or out of vertical to the horizontal stage.

The applicant argues that Halliday fails to teach any rotating means for rotating the x-ray source about z-axis as an axis of rotation in synchronization with the x-ray detecting device, but Halliday clearly teaches that the x-ray source is mounted on a radially movable slide (15), the x-ray detector are also mounted on radially moving slide

(16) and teaches that the synchronization between the sources and the detector is controlled by the master computer (column 2 line 60+).

The applicant argues that Halliday fails to teach any sliding mechanism for sliding the x-ray detecting device in a direction perpendicular to the x-ray incidence plane, but Halliday clearly teaches the rotating mechanism is rotating the x-ray detecting device in a direction about Z-axis perpendicular to the x-ray incidence plane (figure 1 and 3)

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoon Song whose telephone number is 703-308-2736. The examiner can normally be reached on 8:30 AM - 5 PM, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Glick can be reached on 703-308-4858. The fax phone numbers

for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Hoon Song
August 7, 2003

Craig E. Church
Primary Examiner